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Hibbertia glaucophylla is the correct name for the Western Australian species currently known as *H. rupicola* (Dilleniaceae)

K.R. Thiele [1*] & T.A. Hammer [2,3]

[1] School of Biological Sciences, University of Western Australia, 35 Stirling Hwy, Crawley WA 6009
[2] The University of Adelaide, School of Biological Sciences, Adelaide, South Australia 5005
[3] State Herbarium of South Australia, Botanic Gardens and State Herbarium, Hackney Road, Adelaide, South Australia 5000
*Corresponding author: kevin.thiele@uwa.edu.au
K.R. Thiele https://orcid.org/0000-0002-6658-6636; T.A. Hammer https://orcid.org/0000-0003-3816-7933.

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Abstract

There has been historical confusion and error in the application and typification of the name *Pleurandra glaucophylla* Steud., likely caused by a slip of the pen on the original collecting label which caused the collecting number assigned by Preiss (2179) to be mis-transcribed as 2159, a number already used for another Preiss collection. We show that the type of *P. glaucophylla* falls within the circumscription of the species currently known as *Hibbertia rupicola* (S.Moore) C.A.Gardner, necessitating the new combination *H. glaucophylla* (Steud.) K.R.Thiele & T.Hammer as the correct name for the species currently known as *H. rupicola*.

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Introduction

Hibbertia rupicola (S.Moore) C.A.Gardner is based on *Candollea rupicola* S.Moore, published in 1920 (Moore 1920: 163). However, the type of the earlier name *Pleurandra glaucophylla* Steud., published in 1845 (Steudel 1845: 264–265), falls within the concept of *H. rupicola*, indicating that the correct name for this taxon is the new combination *H. glaucophylla*, which is effected in this paper.

The name *Pleurandra glaucophylla* has a complex history, due to a likely error on the part of Steudel. The protologue for the name has the type citation 'In arenosis prope Avon-Dale, districtus York, 10. Apr. 1840. Herb. Preiss. No. 2159'. A specimen at LD (LD 1355477) bears a Preiss collecting label with 'Frutex 1-1/2 pedalis. In solo arenoso prope "Avon-Dale" (York). Fl. flava. Apr. 10 40. L. Preiss legit.'. In the top left of the label is the number '2179' preceded by a pencilled x. However, there is an odd mark from the top stroke of the number seven (Fig. 1a), probably a slip of the pen. At the bottom right of

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the sheet a label is affixed with '2159 Pleurandra glaucophylla' in Steudel's hand (Fig. 1b).

The close match between the collecting location on the label and the type statement in the protologue indicates that this is the type of *Pleurandra glaucophylla*. However, the mismatch between the number on the collecting label (2179) and that on Steudel's annotation slip (2159) indicates that Steudel misread the number. While the specimen is very small and of poor quality, it matches Steudel's protologue description, particularly with respect to the leaves, which are described as 'foliis subfasciculatis glaucis, brevibus (3–4 lineas longis) rigidiusculis crassiusculis glaberrimis apice obtuso vel vix conspicue recurvato-mucronulato' [leaves sub-fasciculate, glaucous, short (3–4 lines long), rigid, thick, glabrous, obtuse or somewhat recurved-mucronulate]. This matches the specimen well, including leaf insertion, length, shape, apex and glaucousness. A single detached flower with a few leaves is mounted alongside the sterile branch that bears the label, but this is of a different species (it has pubescent sepals and leaves) and was presumably mounted on the sheet in error. It plays no role in the typification of the name.

The specimen was determined by J. Wheeler as *Hibbertia rupicola* on 10 July 2002, with the annotation 'Note incorrect label Preiss 2159 belongs with type of *Pleurandra glaucophylla* (*H. aurea*)'. Wheeler evidently interpreted the label as misplaced and the name *P. glaucophylla* as synonymous with *H. aurea* Steud. However, Steudel's protologue in no way matches *H. aurea*, either in leaf or flower characters.

There is a different set of specimens, unambiguously labelled as *Preiss* 2159 and collected from calcareous sand dunes near Perth ('[i]nter saxa calcarea colliculi maritimi ditionis Perth'), which are the types of *Candollea preissiana* Steud. Seven duplicates are available on Global Plants (HBG 507136, M 212894, M 212902, MEL 666701, MO 279472, P 682364, P 2428432), all clearly bearing the Preiss number 2159. They belong in the *Hibbertia racemosa* group, and are very different from both *H. aurea* and *H. rupicola*. Steudel, having apparently misread '2159' for '2179' on the sheet discussed above, added the suffix 'b' to the Preiss 2159 number in his protologue for *C. preissiana*, interpreting incorrectly that there were two Preiss 2159 sets.

Wheeler's error in determining the Preiss specimen probably stems from Bentham (1863: 25), who placed *P. glaucophylla* as a synonym of his *Hibbertia aurea* var. *obtusa* Benth., the protologue of which is as follows:

"Var. *obtusa*. Leaves obtuse, sepals scarcely keeled or pointed. — *Pleurandra glaucophylla*, Steud. in Pl. Preiss. i. 262? The fragments I have seen without flowers agree with this variety; but Steudel describes the ovaries as glabrous, which I have not observed in any *Hemipleurandra*. He does not describe the stamens, but I know of no other western groups to which his specimen could be referred. Swan River, *Drummond*; sandy places near Avon Dale, York District, *Preiss, n.* 2159."

It is not entirely clear whether Bentham erected var. *obtusa* as a replacement name at new rank for *P. glaucophylla* or as a new taxon. The doubt he expresses by the question mark after the Steudel name could indicate the latter, but he clearly relied heavily on Steudel's diagnosis (e.g. he discusses sepals and carpels despite indicating that the only fragments available to him were without flowers), and he cites Steudel's type (including the transcription error from 2179 to 2159). Art. 6.13 of the *International Code of Nomenclature for algae, fungi and plants* (Turland *et al*., 2018) allows authors to use judgment as to whether to treat a name as a replacement name or a name of a new taxon in ambiguous situations such as this. On balance, we choose to treat it as a replacement name, meaning that the type of *H. aurea* var. *obtusa* is the Preiss specimen, the Drummond specimen cited by Bentham has no standing, and the name can be unambiguously placed as a nomenclatural synonym of *H. glaucophylla*. Note that no image of a Drummond specimen carrying the name *H. aurea* var. *obtusifolia* is available on JSTOR Global Plants (https://plants.jstor.org/, accessed 15 May 2022), nor is any such specimen listed in the Kew Herbarium Catalogue (http://apps.kew.org/herbcat/navigator.do, accessed 15 May 2022).

In summary, *Preiss* 2179 is the type of both *Pleurandra glaucophylla* and *Hibbertia aurea* var. *obtusa*, and *Preiss* 2159 is the type of *Candollea preissiana*, a member of the *Hibbertia racemosa* group. *Pleurandra glaucophylla* is the earliest name at species rank for the taxon currently known as *H. rupicola,* necessitating the new combination *Hibbertia glaucophylla* (Steud.) K.R.Thiele & T.Hammer as the correct name for that species.

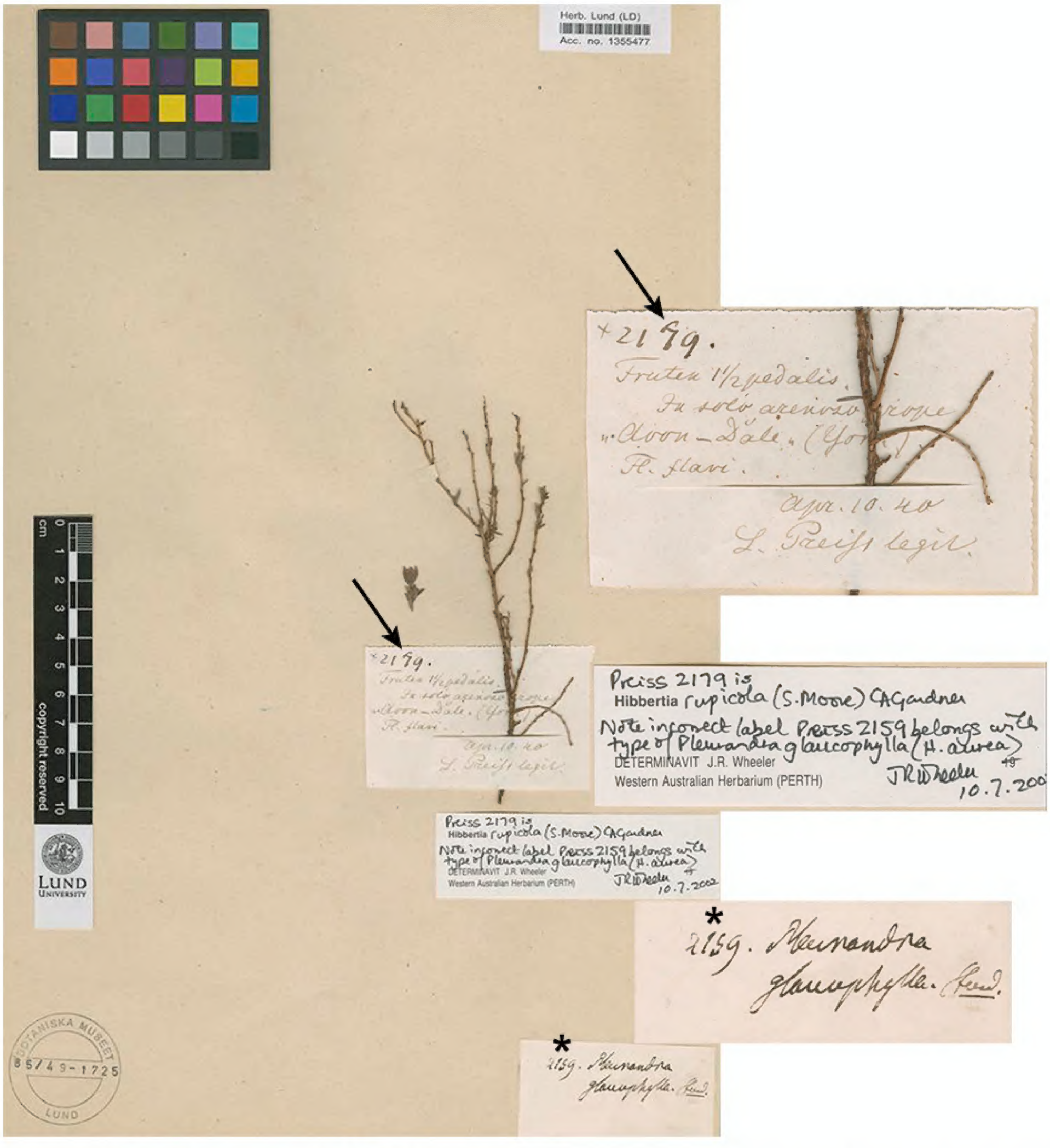
Taxonomy

Hibbertia glaucophylla (Steud.) K.R.Thiele & T.Hammer, *comb. nov.*

Pleurandra glaucophylla Steud., Pl. Preiss. [J.G.C.Lehmann] 1(2): 264 (1845). Type citation: "In arenosis prope Avon-Dale, districtus York, 10. Apr. 1840. Herb. Preiss. No. 2159 [in error for 2179]" — *Hibbertia aurea* var. *obtusa* Benth., Flora Australiensis 1: 25 (1863). Type: Avon-Dale (York), 10 Apr. [18]40, *L. Preiss 2179* (syn: LD1355477 image!; syn: MEL666822!).

Hibbertia teretifolia var. *bisulcata* F. Muell., *Fragm. Phyt. Austral.* 11: 95 (1880). Type: Champion Bay, [Western Australia], *C. Gray* (lecto: MEL 666841, *fide* Wheeler, *Nuytsia* 15(2): 296, 2004).

Candollea rupicola S.Moore, *J. Linn. Soc., Bot.* 45: 163 (1920); *Hibbertia rupicola* (S.Moore) C.A.Gardner, Enum. Pl. Austral. Occ. 83 (1931). Type: Bruce Rock, 1917, *F. Stoward* (holo: BM 516954).



The LD type of *Pleurandra glaucophylla* (image downloaded from Global Plants). Note the pen mark from the upper stroke of the seven in Preiss's number on the collecting label (arrowed), and the annotation from Steudel erroneously interpreting the number as 2159 (asterisked).

Sprawling to erect, openly-branched *shrubs* (0.2–)0.3–0.6(–1) m high, usually multi-stemmed at the base and probably resprouting after fire; young branchlets puberulous with simple, crisped, whitish or yellowish hairs. *Leaves* alternate, fasciculate, linear to very narrowly oblanceolate, straight or shallowly sigmoid, (4–)7–10(–15) mm long, 0.5–0.7 mm wide, glabrous, often glaucous (especially older leaves); margins revolute to a broad midrib (the leaves appearing 2-grooved below); base flattened, not forming a distinct petiole; apex acuminate with midrib extended as a thickened but non-pungent, straight to recurved point. *Flowers* sessile or on very short pedicels to *c.* 0.5 mm long, single, axillary or terminating short-shoots; primary bract immediately below the calyx, narrowly ovate-triangular, 5.5–6.5 mm long, herbaceous to somewhat chartaceous, glabrous; secondary bracts 1–3 or absent, grading into the leaves. *Sepals* herbaceous, 4–6 mm long, glabrous; outer sepals ovate-acuminate; inner sepals obovate-acute or obovate-obtuse and with a short mucronate apex; midribs green or slightly darkened, thickened and ± keeled towards the apex (especially

the outer sepals); margins scarious, sparsely ciliolate. *Petals* 5, yellow, obovate, 4.5–7.5(–9) mm long, emarginate or entire. *Stamens* (9–)11(–17), distributed around the carpels, usually with 9 in 3 bundles of three each fused by their filaments, the remaining 2 free, occasionally with supernumerary stamens or with the two free ones missing; filaments fused for half to three-quarters of their length, 1–2.5 mm long (including fused and free portions); anthers rectangular, 1.2–1.7 mm long, dehiscing by introrse, longitudinal slits. *Staminodes* absent. *Carpels* 3; ovaries compressed-globular, glabrous; styles excentrically placed and emerging horizontally from the ovary apex, spreading outward beyond the stamens, 1.5–2.5(–3) mm long. *Ovule* 1 per carpel. *Fruiting carpels* obovoid, *c*. 3 mm long; seeds almost globular, *c*. 2 mm long, *c*. 1.5 mm wide, orange-brown, shining; aril ± scarious, fringed, covering the basal one-third of the seed.

Selected specimens (numbers refer to PERTH sheets): Dardadine (8828261); Hillman (5499259); Meenar Nature Reserve (6096395); Miling (3094723, 3095037); Nanson (3094731); Pikaring Hill Reserve (8593426); Toompup (3094820).

For full specimen details, see the following batch search of the ALA for the above set of specimens: https://biocache.ala.org.au/occurrences/search?q=qid:1672914768213#tab_mapView

Diagnostic features. Hibbertia glaucophylla is characterised by sessile flowers with 11 stamens surrounding three glabrous carpels (with nine stamens in bundles of three each and two stamens free), and narrow, fascicled, often glaucous leaves < 1 mm broad with margins tightly recurved to a broad midrib and a usually recurved apex.

Phenology. Mostly flowers from mid-September to early November but with scattered flowering recorded throughout the year.

Distribution & habitat. Hibbertia glaucophylla is geographically widespread in the Western Australian wheatbelt from near Geraldton to east of Ravensthorpe. It occurs in a wide variety of habitats including open woodlands and shrublands, occasionally fringing salt lakes, on sandy to loamy soils over granite and laterite.

Conservation status. Hibbertia glaucophylla is widespread and is not considered to be at risk.

Notes. Hibbertia glaucophylla is a distinctive species which is almost certainly closely allied to *H. hamata* J.R.Wheeler. The latter differs most clearly in having distinctly sigmoid, narrowly clavate leaves with less obvious grooves beneath where the margins butt against the midrib; it is narrowly distributed east of the eastern limit of *H. glaucophylla*, around the Thomas River east of Esperance. However, some specimens of *H. glaucophylla* from the Ravensthorpe area have leaves that appear to grade towards those of *H. hamata*. The two taxa could perhaps be regarded as one, with *H. hamata* comprising an extreme variant population of *H. glaucophylla*; however, they are provisionally regarded as separate here.

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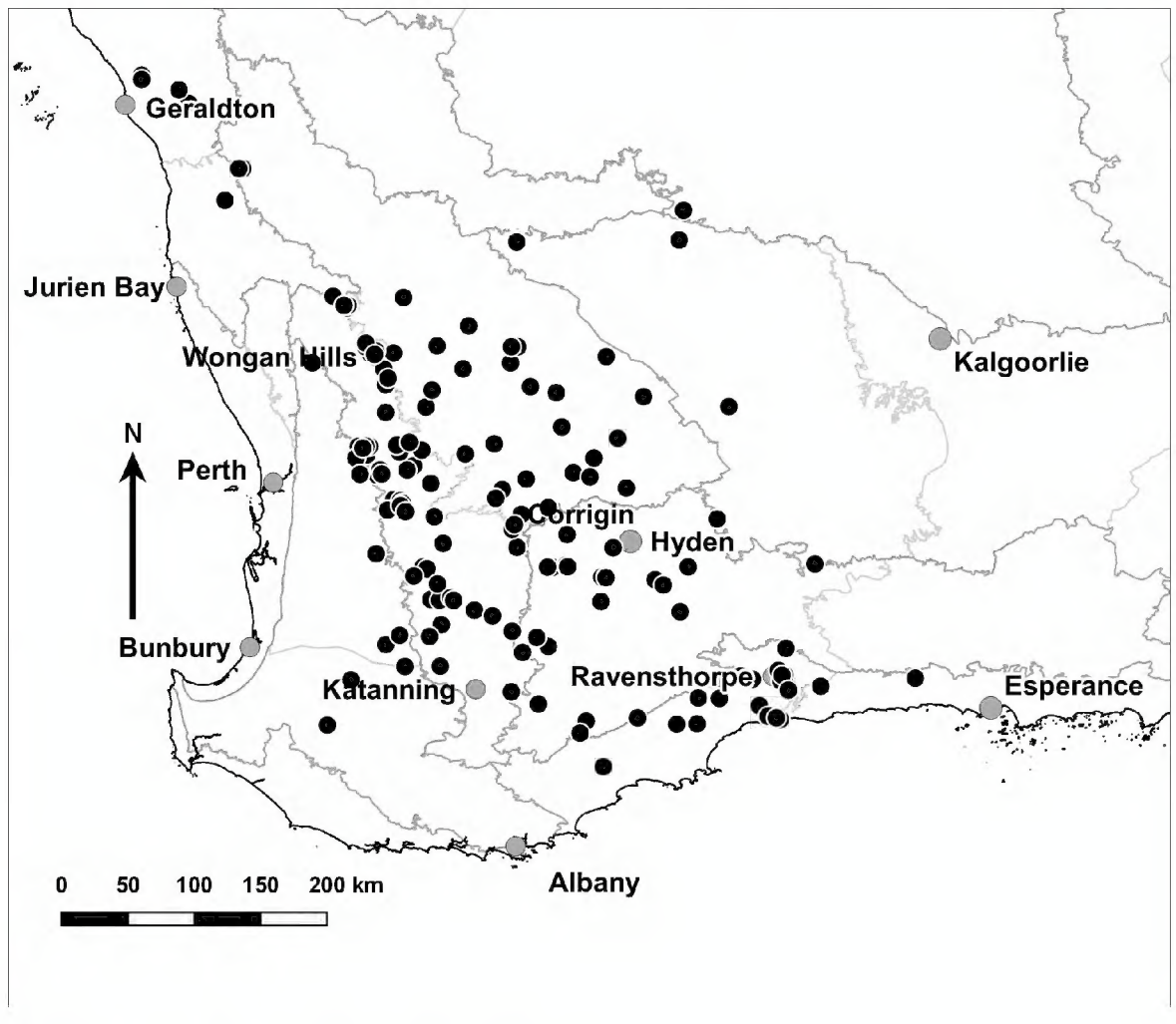

Distribution of *Hibbertia glaucophylla* based on specimens at PERTH.

revisionary synthesis of *Hibbertia* for the *Flora of Australia* and investigations into its taxonomy, systematics, evolution and biogeography", which is funded by the Australian Government's Australian Biological Resources Study (ABRS) National Taxonomy Research Grant Program; KRT is a collaborator on the project.

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